Data Sheet

Cisco Unified CallManager Version 4.2

The Cisco® Unified Communications system of voice and IP communications products and applications enables organizations to communicate more effectively—helping them to streamline business processes, reach the right resource the first time, and impact the top and bottom line. The Cisco Unified Communications portfolio is a key part of the Cisco Business Communications Solution—an integrated solution for organizations of all sizes which also includes network infrastructure, security, and network management products, wireless connectivity, and a lifecycle services approach, along with flexible deployment and outsourced management options, end-user and partner financing packages, and third-party communications applications.

Cisco Unified CallManager is the call-processing component of the Cisco Unified Communications System. Cisco Unified CallManager extends enterprise telephony features and capabilities to packet telephony network devices such as IP phones, media processing devices, voice-over-IP (VoIP) gateways, and multimedia applications. Additional services such as unified messaging, multimedia conferencing, collaborative contact centers, and interactive multimedia response systems interact with the IP telephony solution through Cisco Unified CallManager APIs. Cisco Unified CallManager is installed on Cisco Media Convergence Server (MCS) 7800 Series of server platforms and selected third-party servers. It has a suite of integrated voice applications and utilities, including the Cisco Unified CallManager Attendant Console—a ad-hoc conferencing application, the Cisco Unified CallManager Bulk Administration Tool (BAT), the Cisco Unified CallManager CDR (call detail record) Analysis and Reporting tool the Cisco Unified CallManager Real-Time Monitoring Tool (RTMT), the Cisco Unified CallManager Auto-Attendant (CM-AA), the Tool for Auto-Registered Phone Support (TAPS), and the Cisco Unified CallManager Assistant application.

FEATURES AND BENEFITS

Cisco Unified CallManager Version 4.2 is an enterprise IP telephony call-processing solution that is scalable, distributable, and highly available. Multiple Cisco Unified CallManager servers are clustered and managed as a single entity. Cisco Unified CallManager clustering yields scalability of from 1 to 30,000 IP phones per cluster, load balancing, and call-processing service redundancy. Interlinking multiple clusters allows system capacity to reach 1 million users in a system of more than 100 sites. Clustering aggregates the power of multiple, distributed Cisco Unified CallManager installations, enhancing the scalability and accessibility of the servers to phones, gateways, and applications, and triple call-processing server redundancy improves overall system availability.

Call Admission Control (CAC) helps ensure that voice quality of service (QoS) is maintained across constricted WAN links, and automatically diverts calls to alternate public switched telephone network (PSTN) routes when WAN bandwidth is not available. With Cisco Unified CallManager Version 4.2, devices can automatically update location information as they move from location to location to improve CAC and emergency service performance.

The enhancements provided by Cisco Unified CallManager Version 4.2 offer improved security, supportability, manageability, as well as usability enhancements to user features, including Park, Hunt Group, Cisco Unified CallManager Assistant, and Call Pickup features that have been supported in past releases.

The Call Park feature now allows users to park a call to a specific park slot. Users now also can have a busy-lamp-field (BLF) and speed-dial button that tells them whether or not the park slot is available. The feature is easily invoked by performing a transfer to the park slot.

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With Cisco Unified CallManager 4.2, users now can log their phone into and out of hunt groups. The ability to log out of a hunt group results in shorter call answering times, because callers are not forced to wait for the Ring No Answer timer to expire before their calls proceed to the next phone in the hunt group.

Cisco Unified CallManager Assistant is a valuable application that allows administrative assistants to more effectively support their managers' IP phone activities. It has been ported to an Extensible Markup Language (XML) service that can be run on the phone, allowing assistants that handle executive or manager phones to have the increased features that Cisco Unified CallManager Assistant provides without having to rely on a PC to provide the user interface.

Call Pickup has been enhanced to give an audible and visual notification when a call comes in to the pickup group. Users no longer have to rely on hearing the phone ring to know that there is a call to pick up.

Many customers have security requirements for password aging and one-time passwords. Password complexity rules can now integrate with a Lightweight Directory Access Protocol (LDAP) directory such as Active Directory to provide these security features.

The management of mobile and remote devices is improved with Cisco Unified CallManager 4.2. Cisco Unified CallManager can now track devices as they move from one location to another by mapping the IP address of the phone to a list of configured locations, allowing emergency calls made by mobile devices to call out the correct gateway. This tracking also allows Cisco Unified CallManager to accurately track bandwidth and codec use for CAC purposes.

Call routing to remote phones connected to Cisco Unified CallManager over a WAN has been improved to allow alternate routing when the WAN is out of bandwidth or out of service. During a WAN failure or an out-of-bandwidth situation, the Cisco Unified CallManager can provide routing to the originally called phone number through the PSTN or can call an alternate phone such as a mobile phone.

Voice-quality troubleshooting and tracking has been improved on many of the Cisco Unified IP phones. The phones now report voice-quality statistics, such as mean opinion score (MOS), to help the user and system administrator track voice quality on a call-by-call basis. The phone models support this feature include: Cisco Unified IP Phone 7940G, 7941G, 7941G-GE, 7960G, 7961G, 7961G-GE, 7970G, and 7971G.

SPECIFICATIONS

Platforms

- Cisco Media Convergence Server 7800 Series, including the 7815, 7825, 7835, and 7845
- Selected third-party servers; for details, visit: http://www.cisco.com/go/swonly

Bundled Software

- **Cisco Unified CallManager Version 4.2**—Windows server-based call-processing and call-control application.
- **Cisco Unified CallManager Version 4.2** configuration database—Contains system and device configuration information, including dial plan.
- Cisco Unified CallManager administration software.
- **Cisco Unified CallManager Auto-Attendant**—Bundled with Cisco Unified CallManager with the extended services CD.
- **Cisco Unified CallManager CDR Analysis and Reporting Tool (CAR)**—Provides reports for calls based on call detail records (CDRs). Reports that are provided include calls on a user basis, calls through gateways, simplified call quality, and a CDR search mechanism. In addition, CAR provides limited database administration; for example, deleting records based on database size.
- **Cisco Unified CallManager Bulk Administration Tool (BAT)**—Allows the administrator to perform bulk add, delete, and update operations for devices and users.

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- **Cisco Unified CallManager Attendant Console**—Allows a receptionist to answer and transfer/dispatch calls within an organization. The attendant can install the attendant console, which is a client-server application, on a PC that runs Windows 98, ME, NT 4.0 (Service Pack 4 or greater), 2000, or XP. The attendant console connects to the Cisco Telephony Call Dispatcher (TCD) server for login services, line state, and directory services. Multiple attendant consoles can connect to a single Cisco TCD server. The Cisco Unified CallManager Version 4.2, Attendant Console supports accessibility enhancements for sight-impaired individuals.
- **Cisco Unified CallManager Real-Time Monitoring Tool (RTMT)**—A client tool that monitors real-time behavior of the components in a Cisco Unified CallManager cluster. RTMT uses HTTP and TCP to monitor device status, system performance, device discovery, and computer telephony integration (CTI) applications. It connects directly to devices by using HTTP for troubleshooting system problems.
- **Cisco Unified CallManager Trace Collection Tool**—Collects traces for a Cisco Unified CallManager cluster into a single zip file. The collection includes all traces for Cisco Unified CallManager and logs such as Event Viewer (application, system, and security), Dr. Watson log, Cisco Update, Prog logs, RIS DC logs, SQL), and IIS logs.
- **Cisco Conference Bridge**—Provides software conference bridge resources that can be used by Cisco Unified CallManager.
- **Cisco Customer Directory Configuration Plug-in**—Guides the system administrator through the configuration process for integrating Cisco Unified CallManager with Microsoft Active Directory and Netscape Directory Server.
- **Cisco Unified CallManager Assistant**—Cisco Unified CallManager Assistant provides all the call-routing and display capabilities required by busy administrative assistants and their managers in a business environment. By combining a PC-based console application and various soft keys and display panes on Cisco Unified IP phones, Cisco Unified CallManager Assistant can present users job-specific tools to more efficiently manage calls in this important environment. With Cisco Unified CallManager 4.2, this function is now available as an XML service on the phone.
- **Cisco IP Phone Address Book Synchronizer**—Allows users to synchronize Microsoft Outlook or Outlook Express address books with Cisco Personal Address Book. It provides two-way synchronization between the Microsoft and Cisco products. After installing and configuring Cisco Personal Address Book, users can access this feature from the Cisco IP Phone Configuration Website.
- **Cisco Unified CallManager Locale Installer**—Provides user and network locales for Cisco Unified CallManager, adding support for languages other than English. Locales allow users to view translated text, receive country-specific phone tones, and receive TAPS prompts in a chosen language when working with supported interfaces. This application is downloaded from the Cisco Website as needed.
- **Cisco Unified CallManager JTAPI**—This plug-in is installed on all computers that host applications that interact with Cisco Unified CallManager with the Java Telephony API (JTAPI). JTAPI reference documentation and sample code are included. Cisco Unified CallManager v4.2 adds support for new features as well as the ability to disable device validation, which allows applications to monitor or control a large number of devices without requiring the devices to be specified in the controlled device lists of those applications. The JTAPI Device State Server is new in Cisco Unified CallManager v4.2, as is notification of status (busy, idle, etc.) of a computer telephony integration (CTI) device without having to monitor individual lines.
- **Cisco Telephony Service Provider**—Contains the Cisco Telephony API (TAPI) service provider (TSP) and the Cisco Wave Drivers that TAPI applications to make and receive calls on the Cisco IP Telephony system.
- **Cisco TAPS**—Loads a preconfigured phone setting on a phone.
- **Cisco Dialed Number Analyzer**—Serviceability tool that analyzes the dialing plan for specific numbers.

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SYSTEM CAPABILITIES SUMMARY

- Attenuation and gain adjustment per device (phone and gateway)
- Automated bandwidth selection
- Auto route selection (ARS)
- AXL Simple Object Access Protocol (SOAP) API with performance and real-time information
- Basic Rate Interface (BRI) endpoint support; registers BRI endpoints as SCCP devices
- CAC—intercluster and intracluster
- Call coverage
  - Forwarding based on internal/external calls
  - Forwarding out of a coverage path
  - Timer for maximum time in coverage path
  - Time of day
- Call display restrictions
- Call forward—Busy
- Call forward—No answer
- Call forward internal or external
- *Call forward on nonregistered
  - Codec support for automated bandwidth selection G.711 (mu-law and a-law), G.723.1, G.729A/B, GSM-EFR, GSM-FR, Wideband audio (proprietary 16-bit resolution and 16-kHz sampled audio)
- *Device mobility—Automatic upgrade of location-specific information when a phone moves
- Digit analysis and call treatment (digit string insertion, deletion, stripping, dial access codes, and digit string translation)
- Distributed call processing
  - Deployment of devices and applications across an IP network
  - “Clusters” of Cisco Unified CallManager servers for scalability, redundancy, and load balancing
  - Maximum of 7500 IP phones per Cisco Unified CallManager server (configuration-dependent)
  - Maximum of 50,000 busy-hour call completions (BHCCs) per Cisco Unified CallManager server (configuration-dependent)
  - Eight Cisco Unified CallManager servers per cluster
  - Maximum of 125,000 BHCCs per Cisco Unified CallManager cluster (configuration-dependent)
  - Maximum of 30,000 IP phones per cluster (configuration-dependent)
  - Intercluster scalability to more than 100 sites or clusters through H.323 gatekeeper
  - Intracluster feature transparency
  - Intracluster management transparency
- Fax over IP—G.711 pass-through and Cisco Fax Relay
- Forced authorization codes and client matter codes (account codes)
- H.323 interface to selected devices
- H.323 FastStart (inbound and outbound)

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- Hotline and private line automated ringdown (PLAR)
- Hunt groups—broadcast, circular, longest idle, and linear
- Interface to H.323 gatekeeper for scalability, CAC, and redundancy
- Language support for client-user interfaces (languages specified separately)
- Multilevel precedence and preemption (MLPP)
  - Primary Rate Interface (PRI) 4ESS user-to-user information element (UUIE) support
- *Interworking and tunneling of PRI 4ESS UUIE-based MLPP over an Intercluster Trunk (ICT)
- *Differentiated services code point (DSCP) to MLPP precedence-level mapping
- Multilocation—Dial-plan partition
- Multiple ISDN protocol support
- Multiple remote Cisco Unified CallManager platform administration and debug utilities
  - Prepackaged alerts, monitor views, and historical reports with RTMT
  - Real-time and historical application performance monitoring through operating system tools and Simple Network Management Protocol (SNMP)
  - Monitored data-collection service
  - Remote terminal service for off-net system monitoring and alerting
  - Real-time event monitoring and presentation to common syslog
  - Trace setting and collection utility
  - Browse to onboard device statistics
  - Clusterwide trace setting tool
  - Trace collection tool
- Multisite (cross-WAN) capability with intersite CAC
- Dial-plan partitioning
- Off-premises extension (OPX)
- Outbound call blocking
- Out-of-band dual tone multifrequency (DTMF) signaling over IP
- Overlap sending and receiving
  - Media Gateway Control Protocol (MGCP)
  - *H.323
- PSTN failover on route nonavailability—Automated alternate routing (AAR)
  - *Forward on no bandwidth
- Q.SIG (International Organization for Standardization [ISO])
  - Alerting name specified in ISO 13868 as part of the SS-CONP feature
  - Basic call
  - ID services
  - General functional procedures
  - Call back—ISO/IEC 13870: 2nd Edition, 2001-07 (CCBS, CCNR])

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- Call diversion (SS-CFB (busy), SS-CFNR (no answer), and SS-CFU (unconditional); service ISO/IEC 13872 and ISO/IEC 13873, first edition 1995—call diversion by forward switching and by reroute
- Call transfer by join
- H.323 Annex M.1 (Q.SIG over H.323)—ITU recommendation for Annex M.1

  **H.323 Annex M.1 support for H.323 gateways and H.225 trunks
- Identification restriction (Calling Name Identification Restriction (CNIR], Connected Line
- Identification Restriction (COLR), and Connected Name Identification Restriction (CONR)
- Loop prevention, diversion counter and reason, loop detection, diverted to number, diverting number, original called name and number, original diversion reason, and redirecting name
- Message waiting indicator (MWI)
- Path replacement ISO/IEC 13863: 2nd Ed. 1998 and ISO/IEC 13974: 2nd Ed. 1999

- Redundancy and automated failover on call-processing failure
  - Call preservation on call-processing failure
- Station to station calls
- Station through trunk calls (Media Gateway Control Protocol [MGCP] gateways)
  - JTAPI and TAPI applications enabled with automated failover and automatic update
  - Triple Cisco Unified CallManager redundancy per device (phones, gateway, and applications) with automated failover and recovery
  - Trunk groups
  - MGCP BRI support (ETSI BRI basic-net3 user-side only)
- Security
  - Configurable operation modes—Nonsecure or secure.
  - Device authentication—New model phones have an embedded X.509v3.
  - Certificate; a certificate authority proxy function (CAPF) is used to install a locally significant certificate in phones.
  - Data integrity—TLS cipher “NULL-SHA” supported; messages are appended with SHA1 hash of the message to ensure that the message is not altered on the wire and can be trusted.
  - HTTPS support for the following applications—Cisco Unified CallManager Admin, Cisco Unified CallManager Serviceability, Cisco Unified CallManager User, RTMT, Cisco Unified CallManager TraceAnalysis, Cisco Unified CallManager Service, the Cisco Unified CallManager Trace Collection tool, and the Cisco Unified CallManager CAR tool all have HTTPS support.
  - Privacy—Cisco Unified CallManager supports encryption of signaling and media. Phone types include Cisco Unified IP Phone 7940G, 7941G, 7941G-GE, 7960G, 7961G, 7961G-GE, 7970G and 7971G; Survivable Remote Site Telephony (SRST) and MGCP gateways are supported.
  - Secure Sockets Layer (SSL) for directory—Supported applications include BAT, CAR, Cisco Unified CallManager Admin User Pages, Cisco Unified CallManager Assistant Admin Pages, Cisco Unified CallManager User Pages and IP Phone Options Pages, Cisco Conference Connection, CTI Manager, Extension Mobility, Cisco Unified CallManager Assistant, and Multilevel Administration (MLA).
  - A USB eToken containing a Cisco rooted X.509v3 certificate is used to generate a Certificate Trust List (CTL) file for the phones as well as configuring the security mode of the cluster.

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- Phone security—Trivial File Transfer Protocol (TFTP) files (configuration and firmware loads) are signed with the self-signed certificate of the TFTP server. The Cisco Unified CallManager system administrator can disable HTTP and Telnet on the IP phones.

- Session Initiation Protocol (SIP) trunk
- SRST
- Shared resource and application management and configuration
  - Transcoder resource
  - Conference bridge resource
  - Topological association of shared resource devices (conference bridge, music-on-hold [MoH] sources, and transcoders)
  - Media termination point (MTP)—Support for SIP trunk and RFC 2833
  - Annunciator
- Silence suppression and voice activity detection
- Simplified North American Numbering Plan (NANP) and non-NANP support
- T.38 fax support (H.323 only)
- Third-party applications support
  - Broadcast paging—through foreign exchange station (FXS)
  - Simple Messaging Desktop Interface (SMDI) for MWI
  - Hook-flash feature support on selected FXS gateways

    *Support for Cisco Catalyst® 6608, Cisco Communication Media Module (CMM), and Cisco IOS® Software Cisco 2811, 2821, 2851, 3825, and 3845 integrated services routers, Cisco 3725 and 3745 multiservice access routers, and the Cisco 2691, 2600, 3660, 3640, and 3620 multiservice platforms
  - TSP 2.1 interface
  - JTAPI 2.0 service provider interface
  - Billing and call statistics
  - Configuration database API (Cisco AXL)
- Time of day, day of week, and day of year routing/restrictions
- Toll restriction—Dial-plan partition
- Toll-fraud prevention
  - Prevent trunk-to-trunk transfer
  - Drop conference call when originator hangs up
  - Forced authorization codes
- Unified device and system configuration
- Unified dial plan
- V.150 Secure Modem Calls
  - *V.150 over an ICT
- Video (SCCP and H.323)

* Indicates new or enhanced feature or service for Cisco Unified CallManager Version 4.2

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SUMMARY OF USER FEATURES

- Abbreviated dial
- Answer and answer release
- Auto answer and intercom
- Barge
- Call-back busy and no reply to station
- Call connection
- Call coverage
- Call forward—All (off-net and on-net)
- Call hold and retrieve
- Call join
- Call park and pickup
- *Directed Call Park
  - *BLF for park slot
  - *Park reversion to a directory number other than the one that parked the call
- Call pickup group
  - **One-touch invocation
  - Informed invocation; hitting pickup key gives the user calling and called party information
- *Call pickup notification
- Call status per line (state, duration, and number)
- Call waiting and retrieve (with configurable audible alerting)
- Calling line identification (CLID)
- Calling line identification restriction (CLIR) call by call
- Calling party name identification (CNID)
- Conference barge
- Conference list and drop any party (ad-hoc conference)
- Direct inward dial (DID)
- Direct outward dial (DOD)
- Directory dial from phone—Corporate or personal
- Directories—Missed, placed, and received calls list stored on selected IP phones
- Distinctive ring (on-net vs. off-net)
- Distinctive ring per line appearance
- Distinctive ring per phone
- Drop last conference party (ad-hoc conferences)
- Extension mobility support

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- Group pickup
  - **Other group pickup
  - **One-touch group pickup
- Hands-free, full-duplex speakerphone
- HTML help access from phone
- Immediate divert to voicemail
- Last number redial (off-net and on-net)
- *Log in or out of hunt group
- Malicious call ID and trace
- Manager-assistant service (Cisco Unified CallManager Assistant application)
  - Proxy line support

    Manager features—Immediate divert or transfer, do not disturb, divert all calls, call intercept, call filtering on CLID, intercom and speed dials

    Assistant features—Intercom, immediate divert or transfer, divert all calls, and manager call handling through assistant console application
  - Shared-line support

    Manager features—Immediate divert or transfer, do not disturb, intercom, speed dials, barge, direct transfer, and join

    Assistant features—Handle calls for managers; view manager status and calls; create speed dials for frequently used numbers search for people in the corporate or Cisco Unified CallManager Directory; handle calls on their own lines; immediate divert or transfer, intercom, barge, privacy, multiple calls per line, direct transfer, or join; send DTMF digits from console; and MWI status of manager phone
  - System capabilities—Multiple managers per assistant (up to 33 lines) and redundant service
  - *Cisco Unified CallManager Assistant on the phone with XML service
- MWI
- Multiparty conference—Ad-hoc with add-on, meet-me features
- Multiple calls per line appearance
- Multiple line appearances per phone
- MoH
- Mute capability from speakerphone and handset
- On-hook dialing
- Operator attendant—Cisco Unified CallManager Attendant Console
  - Call queuing
  - Broadcast hunting
  - Shared-line support
- Privacy
- Real-time QoS statistics through HTTP browser to phone
- Recent dial list—Calls to phone, calls from phone, autodial, and edit dial
- Service URL—Single button access to IP phone service

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- Single directory number and multiple phones—Bridged line appearances
- Speed dial—Multiple speed dials per phone
- Station volume controls (audio and ringer)
- Transfer
  - Blind
  - Consultative
  - Direct transfer of two parties on a line
  - **Complete transfer by going on hook
- User-configured speed dial and call forward through Web access
- Video (SCCP and H.323)
- Web services access from phone
- Web dialer—Click to dial
- Wideband audio codec support—Proprietary 16-bit resolution, 16-kHz sampling rate codec

* Indicates new or enhanced feature or service for Cisco Unified CallManager Version 4.2

** Indicates new or enhanced feature or service for Cisco Unified CallManager Version 4.1(3)

SUMMARY OF ADMINISTRATIVE FEATURES

- Application discovery and registration to SNMP manager
- AXL SOAP API with performance and real-time information
- BAT
- CDRs
- CAR tool
- Call forward reason code delivery
- Centralized, replicated configuration database and distributed Web-based management viewers
- Configurable and default ringer .wav files per phone
- Configurable call forward display
- Database automated change notification
- Date and time display format configurable per phone
- Debug information to common syslog file
- Device addition through wizards
- Device-downloadable feature upgrades—Phones, hardware transcoder resource, hardware conference bridge resource, and voice-over-IP (VoIP) gateway resource
- Device groups and pools for large system management
- Device mapping tool—IP address to MAC address
- Dynamic Host Configuration Protocol (DHCP) block IP assignment—Phones and gateways
- Cisco Unified CallManager Dialed Number Analyzer (DNA)
- Dialed number translation table (inbound and outbound translation)

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- Dialed number identification service (DNIS)
- Enhanced 911 service
- H.323-compliant interface to H.323 clients, gateways, and gatekeepers
- JTAPI 2.0 CTI
- Lightweight Directory Access Protocol (LDAP) Version 3 directory interface to selected vendors' LDAP directories
  - Active Directory
  - Netscape Directory Server
  - *Support for password aging, complex password requirements, one-time passwords, etc. with LDAP directory
- Cisco Unified CallManager Multilevel Administration (MLA) access
- MGCP signaling and control to selected Cisco VoIP gateways
- Native supplementary services support to Cisco H.323 gateways
- Paperless phone DNIS—Display-driven button labels on phones
- Performance-monitoring SNMP statistics from applications to SNMP manager or to operating system performance monitor
- QoS statistics recorded per call
- Redirected DNIS (RDNIS), inbound and outbound (to H.323 devices)
- Ability to select specified line appearance to ring
- Ability to select specified phone to ring
- Single CDR per cluster
- Single point system and device configuration
- Sortable component inventory list by device, user, or line
- System event reporting—To common syslog or operating system event viewer
- TAPI 2.1 CTI
- Time-zone configurable per phone
- TAPS
- Cisco Unity® software user integration
- *Voice-quality statistics on a call-by-call basis
  - *Mean-opinion-score (MOS) calculation using k-factor
  - *Concealed seconds calculation
- XML API into IP phones (Cisco Unified IP Phone 7940 and 7960)
- Zero-cost automated phone moves
- Zero-cost phone adds

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CISCO UNIFIED CALLMANAGER VERSION 4.2 ENHANCEMENTS

User Feature Enhancements

- **Call Pickup Notification**—Members of a pickup group can receive an audible or visual notification when a call comes into their pickup group. Hitting the pickup soft key then allows them to perform the call pickup. The system administrator can configure the on-hook and off-hook tone and frequency. The default localized visual message displays "Call(s) available for pickup" on the status line on the phone. A delay timer can be configured to allow the originally called user to pick up the call first.
- **One-touch Call Pickup**—This feature was first introduced in Cisco Unified CallManager 4.1(3). If the system administrator enables the "Auto Call Pickup Enabled" service parameter, the following behavior change occurs: when a call comes into the pickup group and the user hits the pickup soft key, the call is immediately picked up. This operation replaced the three-step operation of traditional Call Pickup: 1) Go on Hook, 2) Hit the pickup button, and 3) Hit the answer button.
- **One-touch Group Pickup**—This feature was first introduced in Cisco Unified CallManager 4.1(3). If the system administrator enables the "Auto Call Pickup Enabled" service parameter, the following behavior change occurs: when a call comes into a pickup group other than the one the user belongs to, the user can pick up the incoming call by 1) hitting the GPickup soft key and dialing the pickup group number.
- **Other Group Pickup**—This feature was first introduced in Cisco Unified CallManager 4.1(3). The system administrator can configure "other" pickup groups that are associated to a pickup group. When a call comes into the "other" pickup group, the user can hit the OPickup soft key to answer the call, thereby eliminating the need to remember and dial the pickup group number. If the pickup group that the call is coming in to is not configured as an "other" pickup group, the user can still use traditional group pickup to answer the call. Users do the following: 1) Hit the GPickup soft key and 2) Enter the pickup group number.
- **Directed Call Park with BLF for park slot**—Users can park a call to a specific park slot. Directed Call Park is invoked with the transfer feature. To park a call users do the following:
  - Hit the transfer soft key.
  - Dial the park slot, hit the BLF button for the park slot, or use a speed dial.
  - Hit the transfer soft key or hang up. ("Transfer On-Hook Enabled" service parameter must be enabled.)

A BLF or park slot busy button is provided that shows the status of the park slot (available or busy). To retrieve a parked call, the user simply dials the park retrieval code plus the park slot.

The traditional Call Park function is preserved with the Park soft key.

- **Log in or log out of Hunt Group**—Users who have a phone that has directory numbers that belong to line groups (hunt groups) can log their phone out of all line groups by hitting the hlog soft key. After invoking the logout feature, a prompt status message "Logged out of Hunt Group(s)" displays the status of the login state. Hitting the hlog soft key a second time logs the phone back into the line group(s). A tone can be enabled by the system administrator to remind users to log back into the hunt group when they return to their phone.
- **Cisco Unified CallManager Assistant on the phone**—An XML service makes it possible for a user to perform administrative functions on the phone without requiring PC interaction. The PC application is still supported, in addition to the XML service. This XML application supports the following screens:
  - Login screen for the user to authenticate
  - Manager Status screen—Shows manager the phone status and call indication and also has soft keys for many different Cisco Unified CallManager Assistant features

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- Specific manager page—Allows the administrator to view specific information for that manager
- Continued support for important Cisco Unified CallManager Assistant features such as handling calls, Immediate Divert, Transfer to Voicemail, Filter Calls, Do not Disturb, etc.

- **Complete transfer by going on hook**—This feature was first introduced in Cisco Unified CallManager 4.1(3). If the "Transfer On-Hook Enabled" service parameter is enabled, a user can complete a transfer by going on hook. Feature invocation is as follows:
  - Hit the transfer soft key.
  - Dial the number to transfer the call to.
  - Go on hook.

SYSTEM CAPABILITY ENHANCEMENTS

- **Automatic-alternate-routing (AAR) support for forwarding calls on no bandwidth**—New fields have been added to AAR that allow a system administrator to redirect calls to an alternate destination (or the original phone through the PSTN if SRST is installed) on a no-bandwidth condition. The new parameters also allow the call to be forwarded directly to centralized voicemail if desired.
- **Call forward on nonregistered**—New forwarding conditionals have been added to the line administration page that give the system administrator the ability to forward calls to a destination that is different from the Call Forward No Answer destination. This setup allows Cisco Unified CallManager to route calls destined for phones at remote sites even when the WAN is down between the remote and central sites.
- **Device mobility**—The system administrator can provide a mapping of IP subnets to device pool and location information. When a phone registers with Cisco Unified CallManager and has moved out of its home location, the Cisco Unified CallManager updates the device pool and location information to correctly reflect the location that the phone has moved to.
- **H.323 Overlap Sending and Receiving**—Cisco Unified CallManager 4.2 now supports overlap sending and receiving for H.323 gateways and intercluster trunks. MGCP overlap sending that was supported in previous versions will continue to be supported.
- **H.323 Annex M.1 support for H.323 gateways and H.225 trunks**—First introduced in Cisco Unified CallManager 4.1(3), this feature supports H.323 Annex M.1 for H.323 gateways and, in the future, for connection to other vendors' private branch exchange (PBX) through an H.225 trunk. At the release of Cisco Unified CallManager 4.2, no certification testing had been completed for interoperability with other PBX equipment.
- **MLPP enhancements**—The following MLPP enhancements have been made:
  - Interworking and tunneling of PRI 4ESS UUIE-based MLPP over an ICT—Allows MLPP information to be passed across an intercluster trunk
  - **DSCP-to-MLPP precedence-level mapping**—Allows Cisco Unified CallManager to set the Type of Service (TOS) field in the IP header with the higher DSCP value based on the MLPP precedence level, determining the DSCP value to be used in the RTP media stream
- **V.150 secure modem support over an intercluster trunk**—Although V.150 modem relay support was introduced in Cisco Unified CallManager 4.1, calls over an intercluster trunk could not support V.150. Cisco Unified CallManager 4.2 now supports V.150 calls across an intercluster trunk.

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ADMINISTRATIVE ENHANCEMENTS

- **Support for password aging, complex password requirements, one-time passwords, etc. with LDAP directory**—Customers who have these requirements can integrate with a supported LDAP directory that can provide these password maintenance functions.
- **Voice-quality statistics on a call-by-call basis**—The Cisco Unified IP Phone 7940G, 7941G, 7941G-GE, 7960G, 7961G, 7961G-GE, 7970G, and 7971G calculate and send MOS and concealment information to Cisco Unified CallManager at the end of the call. This information is stored in the Call Maintenance Record (CMR) database and can be used by third-party or customer-developed applications to run reports and develop trends. The following information is transported and stored by Cisco Unified CallManager:
  - Cumulative conceal ratio
  - Interval conceal ratio
  - Interval conceal ration maximum
  - Conceal seconds
  - Severely concealed seconds
  - MOS listening quality k-factor
  - MOS listening quality k-factor minimum
  - MOS listening quality k-factor maximum
  - MOS listening quality k-factor average

ORDERING INFORMATION

Software Upgrades

A downloadable upgrade package is available for Cisco Unified CallManager clusters that are already running Cisco Unified CallManager Version 4.0 or 4.1 at: http://www.cisco.com/cgi-bin/tablebuild.pl/callmgr-42.

For all other upgrades or new Cisco Unified CallManager 4.2 installations, Cisco Unified CallManager CDs can be ordered.

Customers with a Cisco Software Application Support plus Upgrades (SASU) contract who are running Cisco Unified CallManager versions 3.2, 3.3, or 4.0 and want to upgrade to Cisco Unified CallManager Version 4.2 can order a free upgrade by using the Product Upgrade Tool (PUT) located at: http://www.cisco.com/upgrade.

Customers without SASU who require a CD upgrade can order one of the Cisco Unified CallManager part numbers in Table 1.

Table 1. Cisco Unified CallManager Part Numbers

Product ID	Description
CM4.0-4.2-U-K9=	SW CallMgr 4.0 to 4.2 Upgd, All supported servers
CM4.0-4.2-K9-UPG=	CallManager 4.0 Upgrade To 4.2 For SASU
CM4.0-4.2-K9-SUP=	CallManager 4.0 Upgrade To 4.2 For SMARTnet
CM4.1-4.2-U-K9=	SW CallMgr 4.1 to 4.2 Upgd, All supported servers
CM4.1-4.2-K9-UPG=	CallManager 4.1 Upgrade To 4.2 For SASU
CM4.1-4.2-K9-SUP=	CallManager 4.1 Upgrade To 4.2 For SMARTnet
CM4.2-U-K9-7815SE=	SW CallMgr 3.3 to 4.2 Upgd, MCS-7815, 100 Svr Usr Lic
CM4.2-U-K9-7815=	SW CallMgr 3.3 to 4.2 Upgd, MCS-7815, 300 Svr Usr Lic
CM4.2-U-K9-7825SE=	SW CallMgr 3.3 to 4.2 Upgd, MCS-7825, 100 Svr Usr Lic

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CM4.2-U-K9-7825=	SW CallMgr 3.3 to 4.2 Upgd, MCS-7825, 1000 Svr Usr Lic
CM4.2-U-K9-7835=	SW CallMgr 3.3 to 4.2 Upgd, MCS-7835, 2500 Svr Usr Lic
CM4.2-U-K9-7845=	SW CallMgr 3.3 to 4.2 Upgd, MCS-7845, 5000 Svr Usr Lic
CM4.2-U-K9-DL320=	SW CallMgr 3.3 to 4.2 Upgd, HP DL320, 1000 Svr Usr Lic
CM4.2-U-K9-DL380=	SW CallMgr 3.3 to 4.2 Upgd, HP DL380/1CPU, 2500 Svr Usr Lic
CM4.2-U-K9-DL380D=	SW CallMgr 3.3 to 4.2 Upgd, HP DL380/2CPU, 5000 Svr Usr Lic
CM4.2-U-K9-X206=	SW CallMgr 3.3 to 4.2 Upgd, IBM X206, 300 Svr Usr Lic
CM4.2-U-K9-X306=	SW CallMgr 3.3 to 4.2 Upgd, IBM X306, 1000 Svr Usr Lic
CM4.2-U-K9-X345=	SW CallMgr 3.3 to 4.2 Upgd, IBM X345, 2500 Svr Usr Lic
CM4.2-U-K9-X345D=	SW CallMgr 3.3 to 4.2 Upgd, IBM X345/2CPU, 5000 Svr Usr Lic
CM4.2-U-K9-X346=	SW CallMgr 3.3 to 4.2 Upgd, IBM X346/1CPU, 2500 Svr Usr Lic
CM4.2-U-K9-X346D=	SW CallMgr 3.3 to 4.2 Upgd, IBM X346/2CPU, 5000 Svr Usr Lic

NEW INSTALLATIONS

For new Cisco Unified CallManager installations, Cisco Unified CallManager software and server hardware must be ordered. Table 2 lists these part numbers.

Table 2. New Cisco Unified CallManager Order Numbers

Server Model	Part Number	Number of Phones (Maximum Per Server)
Cisco MCS-7815-I1	CM4.2-K9-7815SE	100
Cisco MCS-7815-I1	CM4.2-K9-7815-I1	300
Redundant Cisco MCS-7815-I1	CM4.2-K9-7815R	300
Cisco MCS-7825-H1	CM4.2-K9-7825-H1	1,000
Cisco MCS-7825-I1	CM4.2-K9-7825-I1	1,000
Cisco MCS-7835-H1	CM4.2-K9-7835-H1	2,500
Cisco MCS-7835-I1	CM4.2-K9-7835-I1	2,500
Cisco MCS-7845-H1	CM4.2-K9-7845-H1	5,000
Cisco MCS-7845-I1	CM4.2-K9-7845-I1	5,000
HP DL320-G3	CM4.2-K9-DL320	1,000
HP DL380-G4 with Single CPU	CM4.2-K9-DL380	2,500
HP DL380-G4 with 2 CPUs	CM4.2-K9-DL380D	5,000
IBM x306 3.4-GHz Server	CM4.2-K9-X306	1,000
IBM X346 with Single CPU	CM4.2-K9-X346	2,500
IBM X346 with 2 CPUs	CM4.2-K9-X346D	5,000
IBM x206 Server	CM4.2-K9-X206	300

The following servers support Cisco Unified CallManager Version 4.2:

- MCS-7815-1000 (up to 300 phones with 1.5-GB memory)
- MCS-7815I-2000 (IBM xSeries 205)
- MCS-7815I-3000 (IBM xSeries 206)
- MCS-7815-I1 (IBM xSeries 206)

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- MCS-7825-1133 (Compaq DL320)
- MCS-7825H-2266 (HP DL320-G2)
- MCS-7825H-3000 (HP DL320-G2)
- MCS-7825I-3000 (IBM xSeries 306)
- MCS-7825-H1 (HP DL320-G3)
- MCS-7825-I1 (IBM xSeries 306)
- MCS-7835-1266 (Compaq DL380)
- MCS-7835H-2400 (HP DL380-G3)
- MCS-7835I-2400 (IBM xSeries 345 8670 [2400 MHz])
- MCS-7835H-3000 (HP DL380-G3)
- MCS-7835I-3000 (IBM xSeries 345 8670 [3.06 GHz])
- MCS-7835-H1 (HP DL380-G4)
- MCS-7835-I1 (IBM xSeries 346 8840)
- MCS-7845-1400 (HP DL380-G2)
- MCS-7845H-2400 (HP DL380-G3)
- MCS-7845H-3000 (HP DL380-G3)
- MCS-7845I-3000 (IBM xSeries 345 8670 [3.06GHz])
- MCS-7845-H1 (HP DL380-G4)
- MCS-7845-I1 (IBM xSeries 346 8840)

The following third-party servers are supported:*

- IBM X306 (IBM xSeries 306, [3.06 GHz])
- IBM X306 (IBM xSeries 306, [3.4 GHz])
- IBM X330 (IBM xSeries 330 8674 [1233 MHz])
- IBM X345 Single Processor (IBM xSeries 345/1 CPU 8670 [2400 MHz])
- IBM X345 Single Processor (IBM xSeries 345/1 CPU 8670 [3.06 GHz])
- IBM X346 Single Processor (IBM xSeries 346/1 CPU 8670 [3.4 GHz])
- IBM X345 Dual Processor (IBM xSeries 345 8670-71x [3.06 GHz])
- IBM X346 Dual Processor (IBM xSeries 346/2 CPU 8840 [3.4 GHz])
- Compaq DL320 (Compaq DL320 [1133 MHz])
- Compaq DL320 (HP DL320-G2 [2266 MHz])
- Compaq DL320 (Compaq DL320 [3.06 GHz])
- HP DL320 (HP DL320-G3 [3.4 GHz])
- Compaq DL380 Single Processor (Compaq DL380-G2/1CPU [1266 MHz])
- HP DL380 Single Processor (HP DL380-G3/1 CPU [2400 MHz])
- HP DL380 Single Processor (HP DL380-G3/1 CPU [3.06 GHz])
- HP DL380 Single Processor (HP DL380-G4/1CPU [3.4 GHz])

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- HP DL380 Dual Processor (HP DL380-G2/2 CPU [1.4 GHz])
- HP DL380 Dual Processor (HP DL380-G3/2 CPU [2.4 GHz])
- HP DL380 Dual Processor (HP DL380-G3/2 CPU [3.06 GHz])
- HP DL380 Dual Processor (HP DL380-G4/2 CPU [3.4 GHz])

* Go to http://www.cisco.com/go/swonly for configuration details.

Customers who have older, nonsupported servers and wish to upgrade to Cisco Unified CallManager Version 4.2 can reference the server upgrade program found at: http://www.cisco.com/go/swonly.

Non-MCS servers that are supported with Cisco Unified CallManager Version 4.2 can be found at: http://www.cisco.com/go/swonly.

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